1. (Twice Amended) A method for manufacturing a plurality of dies containing thinned integrated circuits from a semiconductor wafer having a thickness, a front surface and a backside surface, comprising:

defining a plurality of grooves into said front surface of said semiconductor wafer to define said plurality of dies, said grooves penetrating into said surface at a predetermined distance less than said thickness of said semiconductor wafer so that said plurality of dies remain integral with said wafer;

mounting said wafer to a flat rigid substrate to support said wafer, said wafer being mounted to said substrate with said front surface turned toward said substrate;

mechanically removing a predetermined portion of said backside of said wafer until said thickness of said wafer is reduced to expose said plurality of grooves to said backside in preparation to separating said plurality of said dies, said dies remaining mounted to said substrate; and

releasing said plurality of dies from said substrate.

2. (Amended) The method of claim 1 further comprising disposing a planarizing layer of material on said front surface of said wafer into which said plurality of grooves have been defined prior to mounting said front surface of said wafer to said flat substrate.

3. (Amended) The method of claim 1 further comprising disposing a layer of material on said front surface of said wafer before defining said plurality of grooves into said front surface of said wafer.

10. (Amended) The method of claim 1 wherein mounting said wafer to said flat substrate comprises affixing said wafer by means of an adhesive.

13. (Amended) The method of claim 1 further comprising mounting a die from said plurality of dies onto a flexible film.

15. (Amended) The method of claim 13 where mounting said die on said flexible film further comprises electrically coupling an integrated circuit in said die to metalizations provided on said film.

18. (Amended) The method of claim 17 wherein affixing said front surface to said flat substrate comprises affixing said front surface using an adhesive material disposed between said front surface and said flat substrate

19. (Amended) The method of claim 18 further comprising pressing said wafer and substrate together with said adhesive material therebetween and curing said adhesive material while maintaining said pressure between said wafer and substrate.

23. (Amended) The method of claim 1 where defining said plurality of grooves in said front surface of said wafer comprises defining linear grooves into said front surface of said wafer in an intersecting grid pattern to define each of said plurality of dies, thereby isolating each die by a surrounding moat of stress relieving grooves.

24. (Amended) The method of claim 1 further comprising stacking a plurality of dies manufactured by said method, and electrically interconnecting said plurality of dies.